



## MARKET OPPORTUNITIES FOR LOUDOUN FRUIT & VEGETABLE GROWERS—June 2004

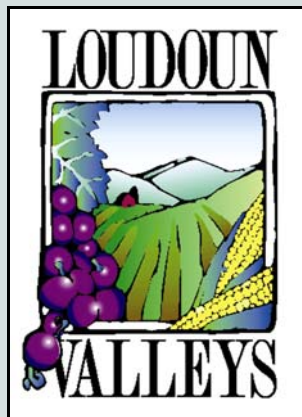


The Loudoun County Department of  
Economic Development Presents

MARKET OPPORTUNITIES FOR LOUDOUN  
FRUIT & VEGETABLE GROWERS

*This report provides a business model that allows an agricultural business to select a production method based on return on investment factors coupled with use of market channels suited to the objectives of the farm business.*

*“...the farm investor can base a production decision on analysis of cost of goods sold and revenue projections.”*



THIS REPORT PRESENTS INFORMATION  
FOR BUSINESS PLANNING IN THE FOOD SECTOR

In 1998 *The 200,000 Acre Solution* made recommendations to help “Farm with Greater Profitability.” A strategy entitled “Support agricultural activities in the rural areas that have the highest potential for expansion” set action steps to (1) provide technical assistance to increase production

of high value crops; (2) conduct market research for economic initiatives and specialty markets; (3) introduce new crops and production methods; (4) provide technical assistance to access new markets and increase market penetration. This report helps to take these steps.

“WHAT SHOULD I GROW AND WILL IT BE PROFITABLE?”

**Supply**

The approach to achieving these action steps is to build, as a first example, the business model of the food related agricultural products of Loudoun. An inventory of existing production of edible horticultural products will be updated to show current food production levels, market channels used by producers, and prices reasonably attained from those channels. Literature research and connections to research centers will disclose both currently and potentially available production methods and their typical crop yields and costs.



**Demand**

There are four broad market channels identified for sale of Loudoun products:

- Community farmers markets
- On-farm sales (Community Supported Agriculture, Wayside Stand and Pick-Your-Own)
- Wholesale to upscale groceries
- Direct to restaurants

The study will identify the potential of these market channels including likely volume of sales, price per unit, delivery terms, and limitations.



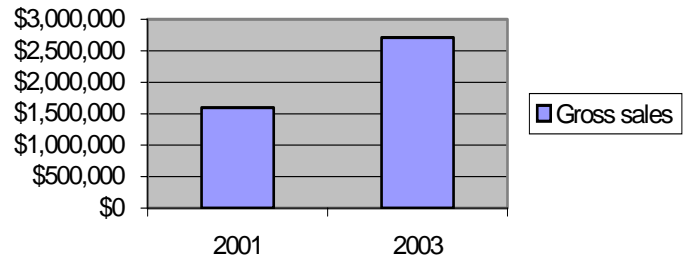
## INVENTORY OF EXISTING EDIBLE HORTICULTURAL PRODUCTS



Surveys of "Direct Market" farm crops were conducted following the production seasons of 2001 and 2003. Most dramatic of the information provided is the 70% increase in gross sales over the 2-year period.



Gross Sales of Direct Market Farm Products



2003 Direct Market Farms (48)

- 960 acres in production
- 3,400 total farm acres
- \$58,900 average sales per farm

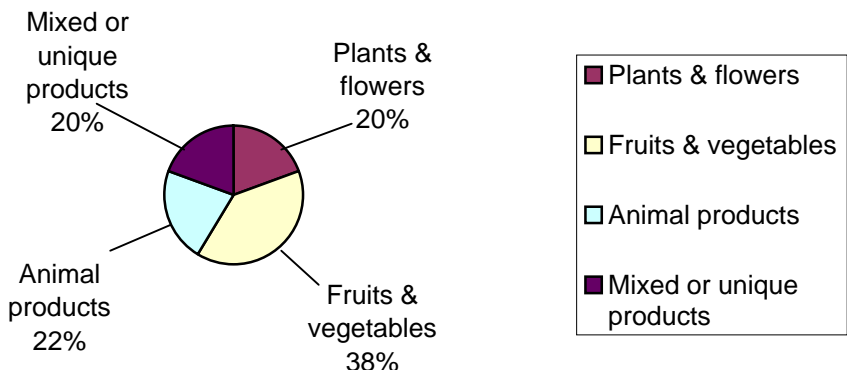
Source: 2001 and 2003 Direct Market Surveys, Loudoun County Department of Economic Development.

Reports from farmers indicate that bedding plants, perennials & annuals are the biggest sellers followed by vegetables and fruit.



Over 88% of the farmers surveyed sell everything they produce – and could sell more; most use modern production technology.

Types of Direct Market Farms



This report identifies farm produce in terms of products desired, prices offered, and volumes used

### *Market Channels*

#### Wholesale Prices:

- *Restaurants*
- *Upscale grocers*

#### Retail Prices

##### *(Direct Market):*

- *Farmers Markets*
- *On-Farm Sales*
- *Farm Stands*
- *Community Supported Agriculture (CSAs)*
- *Pick-Your-Own*

## OVERVIEW AND PURPOSE

The main purpose of this report is to research market opportunities in the Washington metro area and to describe products desired, prices offered, and volumes used. Its intended users are current Loudoun producers who may want to diversify into some of these products or try some of the newer production methods, or enter new marketing channels. Other users would be newcomers to Loudoun who want to grow high-value food and design the best market strategy.

The agricultural industry in Loudoun County is in transition from growing feedstock and cattle on large farms to producing high value and value-added products from smaller operations. Hay and grain fields have changed to horse operations, vineyards, Christmas tree farms, and ornamental horticulture nurseries. Large orchards have given way to smaller farms growing a variety of fruits and vegetables. Far from the lament “farming is dead in Loudoun,” today’s agriculture is flourishing with new investments in expertise-based, land-intensive agricultural enterprises.

The newer products grown on Loudoun’s 100+ market oriented farms are much closer to the end-customers, whether wholesale channels, such as upscale grocers or a winery, or retail channels like farmers markets and pick-your-own operations. Marketing skills are required, foremost among them knowledge about how each market channel operates and the opportunities each offers Loudoun producers.

In the literature of agriculture, precious little is written about marketing – which includes the market research, competitive strategy, distribution, customer service, promotion and sales involved in getting a product from the farmer’s field to the consumer’s plate. This report seeks to begin to fill that gap.

## MARKET BASE

Loudoun County is in the enviable position of being located 40 miles from downtown Washington DC – the 4<sup>th</sup> largest metro market in the U.S. This market boasts an adventurous food environment, where many people from other cultures and well-traveled residents support a rising demand for ethnic and gourmet fruits and vegetables as well as locally-grown fresh, healthy produce.

## APPROACH

Five products are the subjects – **strawberries, raspberries, blueberries, asparagus and leaf lettuce**. These crops grow well in Loudoun County's climate and soil quality and are good fits with the farm size, market location and the supply/demand picture here. In addition, these products all command premium prices, either because they are in high demand, have a short season, a limited shelf-life or a combination of these factors.

Interviews were conducted with chefs, upscale grocers, farmers market vendors and producers with on-farm stands, pick-your-own operations and Community Supported Agriculture (CSAs). These potential buyers were interviewed about:

- Prices paid to producers\*
- Volume needed
- Channel requirements such as delivery or other services
- Other products desired

\*The produce market acts like the stock market in that prices fluctuate, particularly by season and by available supply. Prices are measurable within a range but not precisely predictable because they respond to open market forces.

## PRODUCTION OPPORTUNITIES

This report describes the current production of raspberries, strawberries, blueberries, asparagus and leaf lettuce in Loudoun County, with a “state of the crop” comparison to its market potential. It discusses traditional production as well as new production methods that offer advantages by reducing the cost, increasing the volume, decreasing crop loss, and/or extending the season. Finally, it sets out for each product a range of production costs compared to a range of expected prices.



This report also presents conclusions and opportunities for producers based upon its findings. The estimated production costs and revenue figures presented in this study can be used in business planning for these sustainable, market-based business opportunities for the rural economy.

Chefs LOVE to buy locally

Most chefs will pay a 10-15% premium over wholesale price

## METRO DC AREA MARKET

**Overall:** Gourmet chefs LOVE to buy locally. They want the freshest produce with the best flavor. They know more about how food is produced than others in the food industry and they want to cultivate relationships with producers. Most experiment constantly and in the interviews some mentioned they'd like to have a farmer try some of their new produce ideas. Independent restaurants deal in low volumes. They will pay a small premium over wholesale for better quality products. For unique products, such as fraises des bois, they will likely pay whatever price the producer sets.

For this study chefs from renowned upscale restaurants such as Jaleo in Washington DC and the Ashby Inn in Paris, Va. and one large local chain were interviewed. All stated they had a preference for buying locally. Chefs enjoy promoting local growers, sometimes adding the producer's name on the menu. In fact, many chefs will not buy foods produced abroad when out of our season. They just feature what is in season in this area, or elsewhere in the US. Chefs like to experiment, hear about new products, and prowl the farmers markets for new ideas. All chefs interviewed were interested in hearing directly, by email or telephone, from growers who have products that meet their needs.

For most Loudoun producers we suggest that single restaurants be only a part of your business planning because they offer prices a bit over wholesale, want only small volumes, and require direct delivery. On the positive side, however, they can often use last-minutes overages.

High volume produce users such as chain restaurants may be a good opportunity. Some growers may start a custom growing business, as Steve Turnage in Hague, VA on the Northern Neck, and the Chefs Garden ([www.chefs-garden.com](http://www.chefs-garden.com)) in Ohio have done. Chefs value such people because they are willing to plant new products and deliver superb quality.

## LOUDOUN VALLEY HOME GROWN MARKETS ASSOCIATION



The Loudoun Valley HomeGrown Markets Association sponsors five farmers markets in Loudoun County. The market season begins the first week-end in May and continues through October. The five market locations and hours of operation are as follows:

**Cascades**  
9 a.m.-1 p.m., Sundays  
**Leesburg**  
8 a.m.-Noon, Saturdays  
**Middleburg**  
9 a.m.-1 p.m., Saturdays  
**Sterling**  
4-7 p.m., Wednesdays  
**Purcellville**  
4-7 p.m., Thursdays

## WHOLESALE PRICE

There are a couple of ways to determine wholesale price:

1. Check with Keaney Produce ([www.keaneyproduce.com](http://www.keaneyproduce.com)). Keaney sells wholesale foods to an estimated 70% of DC area restaurants. "We like to buy locally but you have to be near Keaney's price," said Chef Gus Demillo at Ceiba Restaurant.
2. Consult the daily wholesale price in Atlanta published by USDA at: <http://albert.mannlib.cornell.edu:8080/USDAreports/displayReportText?reportid=87>. Also <http://www.ams.usda.gov/fv/mncs/fvdaily.htm>.

The retail price at the Raleigh Farmers Market is at: <http://albert.mannlib.cornell.edu:8080/USDAreports/displayReportText?reportid=85>.

*You can subscribe to USDA's Agricultural Marketing Service reports for free.*

3. Call the new Wegmans store in Sterling, identify the appropriate produce buyer, and see if he / she is interested in your product and what the price is. Wholesale prices to the grower range from 1/3 to 2/3 of the retail price. On average figuring 50% is a good rule of

**Volume:** Chain restaurants might buy 50 flats of blueberries a week, and 200 boxes of tomatoes. But most upscale restaurants want small volumes: a 70-seat restaurant wants two flats of blueberries per week.

**Table One: Prices Paid by Restaurants**

<i>Product</i>	<i>To Wholesaler</i>	<i>To Producer</i>
<i>Raspberries</i>	\$15+/ flat in season; \$40 winter	\$18-26/flat
<i>Strawberries</i>	\$15+/flat	\$16-\$28/flat
<i>Blueberries</i>	\$15 /\$35 winter	\$15-\$20/flat
<i>Asparagus</i>	\$1-2/lb.	\$2-\$3/lb
<i>Leaf lettuce</i>	\$10/box	\$10-\$15/box

Table One sets out the range of prices chefs pay to wholesalers in Column One and the price they would pay to local producers in Column Two. Not surprisingly chefs are willing to pay local producers some increment over the wholesale price. Also, the big money is in out-of-season produce.



# POTENTIAL MARKET SHARE

**Table Two: Volume Purchased by Restaurants**

<i>Product / Length of Loudoun Season</i>	<i>(Est.) DC Area Restaurants</i>	<i>Single Restaurant</i>	<i>Chain Restaurants such as Clyde's</i>
<i>Raspberries 15 weeks (spring and fall)</i>	600 flats /week x 15 weeks = 9,000 flats	1-4/flats/week	"As many as I can get"
<i>Strawberries 3 weeks</i>	1,800 flats / week x 3 weeks =5,400 flats	3-4 flats	150 flats
<i>Blueberries 10 weeks</i>	675 flats / week X 10 weeks =6,750 flats	1-2 flats/wk.	50+ flats
<i>Asparagus (11# box) 5 weeks</i>	1,500 boxes x 5 weeks =7,500 boxes	1-5 boxes	250 boxes
<i>Leaf lettuce 16 weeks</i>	3600 cases / week x 16 weeks =72,000 cases	3-4 cases	NA

**Channel requirements:** Above all, chefs value flavor, whether in common produce like peaches or tomatoes or in specialty items. In addition, they value unusual products, either because the product allows the chef to differentiate his restaurant, or a product is used in the cuisine of the restaurant, such as Spanish garlic for Jaleo. In addition, chefs demand direct to door delivery and send product back if they don't like it.

**Products Desired:** Chefs love raspberries, particularly those produced before and after the regular season. Strawberries are desirable – particularly those with excellent flavor, typically those that are naturally ripened and freshly picked. Many chefs wanted superior-tasting common and unusual types of lettuce. Asparagus is desirable and featured in season. Many chefs complained about the quality of blueberries – they would like to find a local supplier. As for mushrooms, Chris Cary of Ashby Inn said, "I buy a lot of morels. The vendors line up at the back door in season."



## CHEFS RULE...

Other products chefs want:

- Standard produce of superb quality, “We want a peach that bursts with flavor, superb sweet corn, delicious tomatoes.”
- Fancy greens – mesclun, frisée, endive, spinach, romaine, watercress, red oak leaf lettuce, some sprouts
- Specialty mushrooms – morels, shiitakes, oyster, cremini, chanterelle, lobster, black trumpets
- Unusual produce - Spanish garlic, chile de patron, fraises des bois (wild strawberries), unusual eggplant, purple asparagus, and ramps
- Specialty potatoes – rose, fingerlings
- Specialty meats - quail, pheasant, partridge, squab, pousin, and rabbit. Also locally grown beef, pork and chicken.
- Fresh nuts – black walnuts, hickory nuts, butter-nuts, filberts
- Other – mint (not spearmint)



Market Salamander Chef Brendan Cox

Brendan Cox, Chef-in-Residence at Market Salamander in Middleburg, encourages local producers to take a chance. *“Every week, one of our chefs is experimenting with a new product.”*

Chefs are already buying from several local producers including:

- Polyface Inc., Joel Salatin’s Farm near Staunton, Virginia
- Kobe Beef from Sunnyside Farms, a large organic farm in Rappahannock County
- Sally Bolton, The Vineyard Nursery, Middleburg, for lettuce and strawberries
- Westmoreland Berry Farm and orchard in Westmoreland County, VA
- Arnold Farms in Chestertown MD on the Eastern Shore
- A.M. Briggs for local rabbit, quail and beef
- Tuscarora Coop in PA “They have a great sales department. When I forget to fax in my order they call me for it. Tuscarora is known to work with chefs, find growers, and deliver what we want,” said Susan Lindeborg, Majestic Café.
- Poultry and specialty meat from Dartagnan in New Jersey

## WHOLESALE PRICES: UPSCALE GROCERS



**Overall:** Both large and small specialty grocers prefer to buy locally. They often offer some publicity to local producers, such as displaying the name and picture of the farmer in the produce section and encouraging producers to deliver through the front door. Price offered is usually a bit over wholesale and volume can be small to large, depending on the size of the store. Delivery to the grocer is required.

Wegmans, a chain of 66 stores in the Northeast, has just opened the first of two stores in Virginia. Four Loudoun producers of value-added products are already selling to Wegmans and reportedly, are happy to work with them.

*"We buy whatever local producers can provide, particularly new products. Our model is to find a local producer and then help him grow by buying everything he grows. We've done it with a green bean grower in New Jersey, an Asian pear producer in Allentown, and a farmer who grows sweet corn. Of course, they all produce superior products," said Phil Quattrini at Wegmans.*



**Products Desired:**

Grocers are always looking for raspberries and excellent tasting strawberries and tomatoes. Asparagus and blueberries are desirable. Some thought New Jersey blueberries were fine; others wanted a better blueberry produced locally. Organic produce is not particularly appealing to a grocer who is not already completely organic, though that may change. Sustainably produced products *are* important. Products mentioned as desirable:

- Fancy greens – mizuna, tatsoi, Lolla Rosa, red leaf, red oak leaf, butter lettuce, mache, greenhouse sprouts, fiddlehead ferns.
- Specialty mushrooms – shiitakes, oyster, chanterelle, portabello, morels, enoki.
- Specialty meat- quail, pheasant, partridge, squab, pousin, and rabbit apple-fed pork, Kobe beef, milk-fed poulet de bresse.
- Other produce - fraises des bois (wild strawberries), African eggplant, ramps, blackberries, a fabulous sweet corn, Japanese eggplant.

**Best Practices:** Grocers buy from reliable sources such as Steve Turnage, Tuscarora Cooperative, and Tree House Produce. Lee Jones at Chef's Garden in OH custom grows produce. He brings chefs into his Culinary Vegetable Institute. His quality is tops. "He's successful because he listens to chefs, pays attention to detail, and is willing to try to grow new products," said Brendan Cox of Market Salamander.

**Price:** Prices paid by grocers to farmers vary from 1/3 to 2/3 of the retail prices. A good place to start estimating how much to charge for a particular product is to check out the current price lists at Keany Produce and the Tuscarora Cooperative. Upscale grocers are willing to pay a small premium over the regular wholesale price. Larger stores offer lower prices than small stores, as a rule. Table Three lists prices paid by upscale grocers to producers according to our interviews (see Table One for wholesale prices).

**Table Three: Prices Paid by Upscale Grocers**

<i>Product</i>	<i>Upscale Grocer to Producers</i>
<b>Raspberries</b>	\$12 – 26/flat; \$48 winter
<b>Strawberries</b>	\$17 – 27/flat
<b>Blueberries</b>	\$15 – 24/flat
<b>Asparagus</b>	\$2 / lb.
<b>Leaf lettuce</b>	\$2 - \$3/lb; exotics \$6/lb.; \$7-9 for Lolla Rossa; \$19 for micro-tatsoi

**Volume:** Varies directly by size. Larger stores, such as Wegmans, buy 60 flats of raspberries/week and have the alternative of their wholesaler, or in-house supplier. They usually buy their produce from their in-house supplier (in New Jersey) but are most interested in giving priority to local producers. Smaller grocers, such as Market Salamander in Middleburg, buy a smaller volume, 1-2 flats week. It is anticipated that as the restaurants at the Salamander Inn open, demand will grow substantially. Table Four lists typical volumes purchased by upscale grocers.

**Table Four: Volume Purchased by Upscale Grocers/Week**

<i>Product</i>	<i>Upscale Grocers/Week</i>
<b>Raspberries</b>	Small: 3 flats Large: 60 flats
<b>Strawberries</b>	Small: 3 flats Large: 150 flats
<b>Blueberries</b>	Small: 1 flat Large: 10 flats
<b>Asparagus (11# box)</b>	Small: 4 boxes Large: 150 boxes
<b>Leaf lettuce</b>	Small: 1 case Large: 50 cases



USDA Website:  
<http://www.ams.usda.gov/farmersmarkets/map.html>

## RETAIL PRICES: FARMERS MARKETS

Farmers markets offer growers excellent prices for their goods and potentially high volume for those willing to put in the hours required to work three or more markets a week. Farmers market prices are sometimes even slightly higher than comparable store retail prices, depending upon the competitiveness of the product. Market success depends upon great products, but also on marketing, distribution, and labor. Immediate payment helps cash flow, not always available in other channels.



There are 25 farmers markets in Washington DC, 13 within close areas of Maryland (Frederick to Takoma Park), and 19 in Northern Virginia to Winchester. For a complete list go to [www.ams.usda.gov/farmersmarkets/map.htm](http://www.ams.usda.gov/farmersmarkets/map.htm). Food lovers who have seen the farmers markets in French villages can only rejoice that the same freshness, quality, variety, and excitement of those markets are growing in this country. To be sure, there are very large, exciting farmers markets in other parts of the country, notably in New York City, California, Madison, Wisconsin, and others. The Metro DC region is rising to this level as area consumers become more food conscious.

Most markets require that participating vendors sell only food (or other products) they have produced. Others, such as FreshFarm Markets, allow vendors to sell food they have purchased from other local growers as long as the source grower of each product is clearly labeled. This helps a market offer a broader range of products while assuring consumers that the purchased product doesn't come from a chain supermarket or a foreign country.

Some large farmers markets have a paid market master who manages the vendors and the rules, conducts marketing for the market as a whole, including passing out flyers before the market opens, and sends out exciting recipe-filled newsletters to regular customers. In their role as publicists, market masters add sizzle – like sponsoring a popular local chef at the market each week, cooking a dish from products bought at the market and then offering samples to taste and recipes. They also ensure that everyone plays by the rules. Some even visit the participating farms during the winter for, among other things, on-site checks of compliance.

The largest farmers market in the U.S. with 300 vendors and 25,000 customers a day is the Dane County Farmers Market in Madison, Wisconsin, according to The New Farmers Market, by Vance Corum at The Sustainable Agriculture Network. ([www.sare.org](http://www.sare.org)).

Jim Crawford of New Morning Farm and one of the founders of the Tuscarora Cooperative said, *"Getting top dollar for your produce means selling directly to the consumer. New farmers need to understand how to take on debt for capital equipment, how to keep their books, and how to get the labor required."*





**Price:** The best news about farmers markets is that the price is on the high end of retail, e.g. double or better than the wholesale price. There’s still a range of prices, but superb standard products such as peaches and tomatoes plus early or late season items, along with uncommon products, will typically earn the best prices. Table Five sets out the range of retail prices charged for our five representative products at farmers markets.

Table Five: Farmers Market Prices

<i>Product</i>	<i>Farmers Market Price to Consumer</i>
<i>Raspberries</i>	\$36/flat (12 half-pint containers)
<i>Strawberries</i>	\$36/flat (12 pint containers)
<i>Blueberries</i>	\$ 36/flat (12 pint containers)
<i>Asparagus</i>	\$3-4/lb.
<i>Leaf lettuce</i>	\$36/flat; \$1.75 / head

**Volume:** One big producer at a FreshFarm market sells 20+ flats of raspberry half-pints, 30 flats of blueberry pints, up to 50 flats of strawberry pints, and 25 dozen heads of lettuce per day. The lone raspberry vendor at a small farmers market says she’s sold out by 10 AM. Volumes will be smaller for start-up markets before they build a large following of customers. At this point it is impossible to estimate the volume of these products sold in DC area farmers markets because the evidence is all anecdotal. Still, demand clearly exceeds supply for these products.

**Channel requirements:** The first requirement of farmers markets is that producers have to get approval to participate, and get to the market with their own vans, stands, signage, cash registers, and helpers to set up the stand and sell product. This is a big time commitment depending on how many market-days the producer wants to work.

Another channel requirement, but also an advantage, is customer orientation. From informal, immediate feedback, such as customers eating samples, raving about the tomatoes bought last week, or making suggestions for foods they like, producers become attuned to what customers want and build their own loyal clientele. Customer surveys provide broader feedback from more customers.

Finally, successful vendors at farmers markets either have, or quickly learn, marketing skills – such as setting up the stand in an appealing way with appropriate samples, offering excellent recipes, guaranteeing their produce, and looking for ways to get customers to come back, like offering a large bag with handles to carry all the produce customers bought at other stands. Good marketers analyze sales and design their plantings to meet those sales. They also look for niche opportunities with big demand, such as green tomatoes.

In farmers markets that allow “outside” participation, vendors tend to buy food items from other growers at 1/2 to 2/3 of retail price.



**Products Desired:** Raspberries, blackberries and blueberries are big sellers. “Raspberries always go fast,” says Ann Yonkers, FreshFarm Markets. Demand exceeds supply for asparagus. Lettuces, particularly specialties, sell well, as do strawberries.

Successful farmers markets tend to diversify their offerings: FreshFarm Market offers fresh and aged cheeses; free-range veal, lamb, chicken, and pork plus home-made sausage from five vendors; milk and eggs; high quality baked goods; flowers. Some vendors sell sauces, jams, fruit leathers, ciders, and sorbets made from excess fruits. Two Loudoun markets now sell wine.

Other products that do well or are in demand:

- Fresh cut flowers
- Heirloom tomatoes
- Specialty peppers
- All berries
- Herbs
- Mesclun and leaf lettuce
- Fruits and vegetables for Latino, Eastern European, and Middle Eastern segments
- Milled grains – cornmeal, rye, barley



Enterprising growers put together packages of produce ingredients for salsa, spaghetti sauce, and ratatouille. Some look for products not available from other vendors, while others grow heirloom tomatoes in preference to Better Boy, Savoy cabbage instead of regular, cinnamon basil versus standard. Exciting product signage is key here, explaining the excellent flavor or offering cooking tips and recipes for new or unusual products such as kohlrabi, kale, beets, celery roots, and Jerusalem artichokes.



## RETAIL SALES: FARM STANDS

On-farm sales include wayside stands (as they are called in Loudoun), Community Supported Agriculture (CSA), and pick-your-own (PYO) operations. Many farms use a mix of these sales channels.

Farm stands offer a lot of advantages including premium prices and the flexibility to sell what you grow and buy-in what you don't. Size of the operation, both the physical size and the hours of operation, can be arranged to suit the producer's preferences.

It takes the right location to make a farm stand work. You must comply with local regulations. The wayside stand is a by-right use in AR1 and AR2 zones. Contact the Department of Economic Development for specific information on requirements.

Running a farm stand is labor intensive and requires marketing skills and enthusiasm. For more information about creating a farm stand please refer to The New Farmers' Market, page 43.

**Price:** Table Six shows farm stand retail prices in Column One, prices the farm stand owner will pay an outside producer in Column Two, and the bought-in volume the farm stand might need in Column Three.

**Table Six: Prices and Volumes at Farm Stands**

<i>Product</i>	<i>Farm Stand Price to Consumer</i>	<i>Prices Paid for Bought – in Produce</i>	<i>Volume Bought In</i>
<i>Raspberries</i>	\$45/flat	\$24 – 36/flat	5+ flats/week
<i>Blueberries</i>	\$36/flat+	\$24/flat	5+ flats / week
<i>Asparagus</i>	\$2-4/lb.	\$1.20/lb.+	30 lbs. / week
<i>Strawberries</i>	\$36+/flat	\$12/flat	15 flats / week
<i>Unusual lettuce</i>	\$2.50 Boston lettuce		NA

### Products desired:

Farm stand owners said they sell mostly what they grow on their farm. Some already do buy from other producers; some would like to start. Products they would like to buy include:

- Cut flowers
- Lettuces
- Raspberries (“when I run out”)
- Blueberries
- Blackberries
- Fresh cheese
- Locally raised poultry

**Channel Requirements:** Location is key for an on-farm stand. You'll need frontage on a highway with enough traffic to make a business. You'll need an adequate turn-in arrangement, driveway and parking. Marketing a farm stand requires good signage on the road and good signs for each product in the market, giving the stand a strong “curb appeal.” You'll need to decide the best hours – all-day, during the commuting hours, or just on weekends. The hours, in large part, determine the volume. Even within the borders of Loudoun County, there are small, medium, and large farm stands. Capital costs are relatively low compared to other farm retail opportunities though staffing the stand incurs labor costs.

## RETAIL PRICES: COMMUNITY SUPPORTED AGRICULTURE (CSAs)

For more information, please see the USDA web site at: <http://www.nal.usda.gov/afsic/csa>

Another good source of information is on the Good Harvest web site at: <http://www.communityharvestdc.org/network/csas.html>

According to USDA CSAs are growing in popularity because they offer the farmer good revenue at reduced risk on less than 10 acres. What's more, cash comes in before many of the bills do. Farmers who excel at CSAs have solved the labor and delivery problems, learned how to interact with customers, figured out how to attract customers back, and developed new ways to market their goods. They are a recent development in response to growing consumer preference for fresh, local produce, available conveniently. They also give members the opportunity to participate in the farm experience.

In a CSA subscribers buy a "share" in the farm harvest. In exchange shareholders receive a weekly small or large basket of vegetables, which sometimes includes fruit, flowers, and herbs. Some CSAs deliver the shares while others have their customers pick them up at a set location. CSA members accept part of the financial risk of farming and usually enjoy some access to "their" farm for volunteer activities, PYO, or educational events. There are four CSAs in Loudoun and several others in Fairfax, Fauquier, and Rappahannock counties. There are others in the Maryland suburbs.

**Price:** In a CSA the farmer gets her/his money up-front before many of the bills start coming in. This also means that the buyers are assuming some of the production risks. Subscribers get what the CSA farmer grows that season. CSAs have various ways to generate more revenue from on-farm experiences, particularly "agri-entertainment" for children. Sample terms of CSAs follow:

- One CSA offers a \$600 subscription of a weekly basket of different vegetables for a 33-week season. This share potentially includes 53 different products throughout the season. This share is for on-farm pick up only.
- Another CSA offers a vegetable subscription for \$750 (large) and \$600 (small). A flower share is \$120, fruit share is \$128, and an egg share is \$78. In all, 68 different vegetables are available during the season. As of now, delivery is to a central pick-up location.
- A third CSA charges \$730 for a large share and \$521 for a small share for a 22-week subscription of up to 50 fruits and vegetables with home delivery.



Prices that CSAs pay for goods bought from other producers range between 50% and 75% of retail.

*Editor's Note: CSAs offer generous amounts of vegetables. Some buyers split the produce, and the price, with a neighbor.*



## RETAIL PRICES: COMMUNITY SUPPORTED AGRICULTURE

**Volume** is determined by the number of shares sold, which may vary from year to year, and by crop success. Local CSAs say 50% of each year's customers return the following year.

**Channel Requirements:** First a CSA requires farmland and labor. According to CSAs Across the Nation: Findings from the 1999 CSA Survey, CSA farms total about 18 acres, with 7.4 acres in production. On average they employ two workers. Most have planned events such as potluck dinners, events for kids of members, educational projects and creative programs to help low-income families participate.

CSA farmers are younger than the average age farmer; 40% of the primary managers are women. The most successful CSAs have had a core group of members that helped start, support, and grow the CSA. More information on CSAs can be located at <http://www.nal.usda.gov/afsic/csa/>.

**Products Desired:** Local CSAs have indicated an interest in buying fruits from local producers. The produce should be organic or sustainably grown. While most do not currently buy from other vendors, most seemed open to the idea, particularly for early and late season popular fruits and vegetables. Interest was expressed in buying the following products from other vendors:

- Early and late strawberries
- Early and late asparagus
- Apples
- Peaches
- Blueberries
- Corn
- Late Fall greens

CSAs with fruit shares want to buy locally and would also like to buy:

- Grass fed meat
- Eggs
- Turkeys
- Christmas trees
- Spring strawberries and asparagus
- Fall greens from high tunnels

**Potential Collaboration:** One manager suggested that the CSAs in Loudoun County get together to discuss delivery systems and cooperative growing. Another suggested getting together to share a cold storage location for storing onions, garlic, squash.

# RETAIL PRICES: PICK-YOUR-OWN (PYO)

Pick-Your-Own operations offer a variety of seasonal products. Customers come on the farm and pick the produce either in the farm’s containers or their own and pay by weight. Local products offered for Pick-Your-Own include raspberries, strawberries, blackberries, pumpkins, cherries, blueberries, peaches, apples, pears, okra, lettuce, and onions.

**Price:** PYO produce often sells for full retail price (or it is a benefit to CSA members only). There are nine PYO operations in Loudoun, though one is a CSA that is open only to shareholders.

Table Seven sets out prices offered by various PYOs in 2003.

Table Seven: PYO Prices to Consumers

Product	PYO Price to Consumer
Raspberries	\$48 / flat (~ \$4/lb)
Blueberries	\$3-4/lb.
Asparagus	\$4 lb.
Strawberries	\$16/ flat (~ \$4/lb)
Unusual lettuce	NA

**Volume:** The volume of pick-your-own operations depends on the volume produced by the farm and size of the customer base. As the farm grows, so do marketing initiatives.

**Channel Requirements:**

PYO farms require easy access to the farm and to the products, plus some picking instruction and sales assistance. This is management intensive, often because the season for any individual product is short. PYO farms need a good marketing effort to draw customers. Agri-entertainment options may help (see CSAs) as families with young children love to visit the farm.

**Good Examples:**

Westmoreland Berry Farm is a good example of a PYO operation. It offers strawberries, raspberries, and blackberries at PYO; their other fruits are available already picked. Catoctin Mountain Orchard has a roadside stand open 10 months of the year and offers pick-your-own raspberries, cherries, and blueberries.

A good source of information about pick-your-own operations as well as other Virginia farms is at <http://www.vdacs.state.va.us/vagrown>.

## PRODUCTION OF HIGH VALUE FOODS



The production systems examined here are standard field planting, high tunnel production, greenhouse and hydroponic production.

Examples of the estimated production costs and expected revenue associated with each of these systems for the five high value crops appear in the following pages.

This part of the report looks at the present production levels of five high value products in Loudoun and suggests action steps to move toward reaching the production potential.

### Financial Analysis of Production Methods

New production technologies that extend the season for a crop, and the new plant varieties adapted to them, offer farmers a way of earning high prices on greater volumes. They require larger investment capital in the operation, and they also demand a higher level of skill and management from the producer. They are worth the additional effort, however. The different production techniques yield prod-

ucts at different costs, but the biggest cost difference among these techniques is the initial investment to bring the technical system into production. The difference in operating costs between new technology systems and standard field systems will be insignificant as a part of the price received for the products.

### Production Costs v. Prices Received

The production cost figures given in the examples below include all variable expenses, plus a few fixed expenses. Examples of the fixed expenses are tillers, trickle irrigation systems and high tunnel houses. The cost figures do not include land cost or major expenses such as a greenhouse. The reason for leaving them out is to eliminate the sunk cost and amortization variables from the accounting and to work just with operating results. As a practical matter, since many of the small farms in Loudoun are life-style choices, there is no real need to pay for the place out of crop sales. This being said, most growers still take very seriously the matter of making money from their work. So, the idea of comparing actual costs to actual earnings from a crop is worthwhile. Making an operating profit equates to real success in any crop enterprise.

Please note that when referring to volume, previous sections of this report refer to flats or boxes, the language of the buyer. This section, however, expresses volume in pounds, the common usage of the grower. Importantly, pricing does not translate well between volume and weight. Just because a half-pint of raspberries sells to the consumer for \$3 doesn't mean that a pound (about 4 half-pints) sells for \$12. It doesn't because product sold by the pound is often the equivalent of "bulk" sales. Generally, farmers think in pounds for profitability but sell in volume containers priced competitively.

# EXAMPLES OF HIGH VALUE CROPS - RASPBERRIES



Using reliable USDA data about per capita consumption, Washingtonians eat some 820,000 flats of fresh raspberries each year (please refer to Table Eight). At this time Loudoun has only four acres in commercial red raspberry production. The potential expansion area is huge. Approximately 50 farms now produce fruits and vegetables for the direct market on approximately 400 acres. These farms have additional acres where they could expand production. In addition to these, Loudoun County residents living on rural lots of ten to twenty acres have a total of more than 40,000 acres. Many

of these places produce nothing but grass at this time. So, land is not the constraint on raspberry production; the small number of people interested in growing raspberries is.

One reason for this is that local growers find the crop troublesome, particularly when summer rains are abundant. Years with heavy rainfall—like 2003—are big trouble for red raspberries.

Demand is so strong for raspberries, however, that producers would find it profitable to redouble their efforts to produce them. Modern red raspberry production needs a fair trial. This means planting on good soil, using raised beds, chisel-plowing the planting area to improve drainage, and perhaps planting raspberries in high tunnels with trickle irrigation. High tunnels have great potential for Loudoun County producers, especially in view of the high proportion of excellent marketable berries they produce.

Raspberries raised in the field can cost very little to produce - \$0.80-\$1.25 per pound. Taking that pound and subdividing it into three+ half-pints selling at \$3 each leaves a lot of room for profit.

Raspberries can also be very expensive to produce using alternative techniques. Raising them in a greenhouse heated with expensive propane in January can push the cost north of \$3 per pound. At that cost, you’ve got to get \$4 per half-pint.

In the real world costs are often higher than those reported in research projects. The reasons are that the grower often falls short of meeting desirable production criteria such as high marketable yield, top quality, lengthy growing season, using emerging technology and having reliable production with predictable sales. The more these criteria are achieved, however, the greater the likelihood of monetary success.

## Standard Field Production System:

**Production Cost Range:**  
\$0.80 to \$1.25 per pound  
Yield Range: 2000 lbs to 8000 lbs/acre

**Selling Price Range:**  
\$3.00/lb @ PYO; \$4.00-4.50/lb @ wayside stand & farmers markets; \$3 - \$6/lb @ store/restaurant

**Market Channels:**  
PYO, wayside stands, farmers markets, grocery stores, restaurants,





### **Standard Field Production System:**

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Market Channels: PYO, wayside stand, farmers market, grocery store, restaurant



### **High Tunnel Production System**

Production Cost Range: \$1.20 to \$1.70 per pound

Yield Range: 500 – 1,000 lbs (from a 16' x 96' high tunnel)

Selling Price Range: \$3.00 to \$6.00/lb, out of season, all outlets

Market Channels: Wayside stand, farmers market, grocery store, restaurant

Basic High Tunnel Construction Cost: \$4,000 for 96' x 24' unit

### **Greenhouse Production System**

Production Cost Range: \$3.00 per pound or more

Yield Range: ~1,500 lbs/24' x 96' unit

Selling Price Range: \$4.00 to \$7.00 per pound in winter

Market Channels: Grocery store, restaurant, year-round farmers markets

Greenhouse Construction Cost: \$15,000 - \$30,000



## EXAMPLES OF HIGH VALUE CROPS - STRAWBERRIES

With strawberries the research again finds great potential in local markets. Customers at PYO farms and farmers markets clamor for strawberries. DC area restaurants alone take 5,400 flats of strawberries during the height of the local 3-week season. This production could be attained from select local berries on 10 acres. During the other 49 weeks of the year, strawberries come from other places. Modern strawberry production technology could provide Loudoun product for many of those weeks, too.



Strawberries might be the most neglected of all the high value crops in Loudoun County. The Direct Market Survey found only four commercial acres of strawberries in the county. Growers say the problems are late killing frosts, difficulty in controlling weeds, inappropriate soils, stoop labor requirement, and marketing difficulties.

Many of the problems common to strawberry production can be successfully addressed by newer production systems. A successful local demonstration plot could show how to solve these problems. The plot could feature growing techniques that are well suited to growing conditions here.

Strawberries offer the widest range of production alternatives. The alternatives are matted row, plasticulture, high tunnel and greenhouse. Perhaps only one—field plasticulture—will not work well here. Also, a very important concern with strawberries here is late frost, which can result in complete loss of the crop for one year. Late frosts occur often in Loudoun. Consequently, the prudent strawberry grower should look to a production system that can avert losses caused by late frost. Perhaps the best passive method of dealing with freeze losses is by planting a late variety of strawberries. High tunnel houses and greenhouses are expensive alternative frost-free methods.

Matted Row Strawberries  
courtesy Penn State Small Fruits



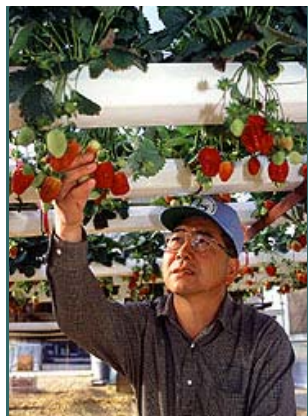
### **Matted Row Strawberry Production**

Production Cost Range: \$1.00 - \$1.50/lb

Yield Range: 5000 – 8000 lb/Acre

Sales Price Range: \$3.00 - \$4.25/lb

Market Channels: PYO, CSA, wayside stands, farmers markets, grocery stores, restaurants



### **Greenhouse Strawberries**

Production Cost Range: \$3.00 – \$3.50/lb

Selling Price Range: \$5.00 - \$7.00/lb, out-of-season

Market Channels: Winter farmers markets, grocery stores, restaurants

Greenhouse Construction Cost: \$15,000 - \$30,000



### **High Tunnel Strawberries**

Production Cost Range: \$3.00/lb

Yield Range: 1.2 lb/SF, 1200 lbs from 16' x 96' HT

Selling Price Range: \$4.50 - \$5.50/lb, out-of-season

Market Channels: farmers markets, grocery stores, restaurants

High Tunnel Construction Cost: \$4,000 for 96' x 24' unit



## EXAMPLES OF HIGH VALUE CROPS - BLUEBERRIES

Blueberries—with their potent anti-oxidant activity—are a hot food item in health-conscious Washington. Consumer research indicates that large volumes of blueberries are eaten fresh and whole in restaurant and homes, not to mention the ubiquitous blueberry muffins eaten every office workday. USDA data indicate that the volume of blueberries consumed in the DC area (58,000 flats) translates into the entire production of 30-35 acres of blueberry plants. Local production capacity doesn't approach this number.

Loudoun County has only three farms that raise blueberries. One, which has 1,200 bushes, is open only to friends for picking. Another, with four hundred bushes, is known only by word of mouth. The third, with 2,000 bushes, is part of a CSA operation.

The potential for this crop here is vast. There are some technical constraints on raising blueberries in Loudoun, but once these are met, the berries grow well. Picking and selling blueberries is easy and the crop is profitable.

### Blueberries (Field Production Only)



### Blueberries

Production Cost Range: \$1.50 - \$2.00/lb

Yield Range: 5,000 – 8,000 lbs/Acre

Sales Price Range: \$3.00 - \$4.00/lb

Market Channels: PYO, CSA, wayside stand, farmers market, grocery store, restaurant



## EXAMPLES OF HIGH VALUE CROPS - ASPARAGUS

Rainy April days in Loudoun trigger thoughts of tender asparagus. As the first major local crop of the year, asparagus receives a big welcome here. From mid-April to early June, local growers can charge a premium price for their product. Abundant spring rains bring large volumes of tasty asparagus, which can be sold at farmers markets, wayside stands and PYO farms where prices are the best. Restaurants and some grocery stores are also eager buyers of this crop. The high price paid (\$3.00/lb) for local production is the attraction for this crop.

There are currently two commercial asparagus producers in Loudoun County. One states that asparagus is very profitable for him, but he has just a small area because it is labor-intensive. The specific work component that takes time is weed control, which has to be done manually in organic or near-organic growing systems.

Again, there is a great potential for asparagus. It is easy to grow here. There are no serious constraints on its production, although good weed and grass control is essential. There are products—weed control fabrics, not to mention herbicides—on the market to deal with this problem.



### Asparagus

Production Cost Range: \$1.25 - \$1.50/lb  
Yield Range: 2,000 – 4,000 lbs/Acre  
Sales Price Range: \$2.50 - \$3.50/lb  
Market Channels: PYO, CSA, Wayside stand, farmers market, grocery store, restaurant

### Asparagus (Field Production Only)



## EXAMPLES OF HIGH VALUE CROPS - LETTUCE



### Leaf Lettuce in Field

Production Cost Range:

\$2.00 - \$4.00/lb

Selling Price Range:

\$10 - \$12/lb

Market Channels: PYO, wayside stands, farmers markets, grocery stores, restaurants

In Loudoun a little bit of land in lettuce goes a long way. Acre is not the measure of lettuce; the total footage of rows in lettuce is. Consumption, however, is measured in big numbers. Americans eat an average of 24 pounds of lettuce a year.

Granted, a lot of this is shredded iceberg lettuce in fast-food hamburgers, which is not the focus of this report. Still, DC restaurants alone consume 72,000 cases per year of non-iceberg lettuce. To meet this out-sized demand, Loudoun needs more commercial lettuce producers. With all the attention on leaf and romaine lettuces for salads in recent years, lettuce is an easy sell at farmers markets and in any direct market venue. The input costs of raising lettuce are next to nothing; labor is the biggest cost component.



Lettuce growers invariably say the crop is easy to grow, profitable, and easy to sell. Because of all the competition from good quality bagged salad mixes, producers tend to be cautious about expanding their lettuce and greens plantings. Nevertheless, current Loudoun growers say they sell out and they can't produce enough of the different greens. Clearly, then, this is a high potential product.

Another valuable point about lettuce and greens is production flexibility. They seem to want to grow everywhere, except in the hot summer sun. Field production coupled with early and late production in high tunnels assures virtually year-round production of lettuce and greens.

Leaf lettuce offers some good alternatives to field production. Typical field production is in spring for 8 to 10 weeks and a shorter season in fall. High tunnels and greenhouses allow lettuce production year-round. The appearance of bagged mixed salads throughout the year is testimony to the popularity of this food. Leaf lettuce is a profitable add-on crop for small producers.



### Leaf Lettuce in High Tunnel

Production Cost Range: \$2.00 - \$4.00/lb

Selling Price Range: \$10 - \$15/lb, out-of-season

Market Channels: PYO, wayside stands, farmers markets, grocery stores, restaurants

High Tunnel Construction Cost: \$4,000, 96' x 24' unit

## CONCLUSIONS AND OPPORTUNITIES

**The five products discussed in this report are recommended because they grow well in Loudoun conditions, receive premium prices, and some have new production techniques which can extend the season, reduce loss, and allow even higher prices.** In addition to raspberries, strawberries, blueberries, asparagus, and fancy lettuces, others with similar features are yellow and black raspberries, blackberries, special tomatoes, spinach and greens.

**The Washington DC metro area provides a huge volume opportunity for Loudoun producers.** The chart below summarizes amounts consumed of these five products in the Washington area compared with a rough estimate of potential Loudoun production from current acreage in cultivation. Demand far outstrips the production of these fruits and vegetables in Loudoun County.

Table Eight sets out the estimated volume of product consumed by restaurants, farmers markets, upscale grocers and farm stands. The restaurant data is fairly certain since it is based upon data from the main wholesaler. Farmers markets are less easy to estimate because no one (to our knowledge) keeps track of the volume sold by the market as a whole. Upscale grocers are reasonably reliable. Farm stands is an estimate based on three in Loudoun County. Again, Loudoun producers currently produced *only a fraction* of these products consumed through our channels of interest. When compared to the total amounts consumed in the DC area, Loudoun production hovers around 1 -2 %.

**Table Eight: Rough Estimate of Demand by Channel in Metro DC  
In-Season only (Flats, Boxes, or Cases)**

<i>Product</i>	<i>Restaurant</i>	<i>Farmers Markets</i>	<i>Grocery</i>	<i>Farm Stands</i>	<i>TOTAL</i>	<i>Est Loudoun potential</i>	<i>Est Consumption DC Area</i>
<i>Raspberries (flats)</i>	9,000	7,500	945	255	17,700	5,000	823,000
<i>Strawberries (flats)</i>	5,400	1,875	450	45	7,770	1,300	926,000
<i>Blueberries (flats)</i>	6,750	7,500	600	50	14,900	1,800	58,000
<i>Asparagus (11 #)boxes)</i>	7,500	NA	315	NA	7,815+	100	162,000
<i>Leaf lettuce case of 24)</i>	72,000	12	160	NA	72,000	NA	1.2 million

**Retail direct market channels offer double the prices of wholesale channels.** Producers are advised to maximize their sales in retail channels (farm stands, farmers markets, pick-your-own, and CSAs) because they earn about double the revenue of wholesale channels (restaurants and upscale grocers). The following illustrative chart makes that point:

**Table Nine: Potential Gross Margin for Raspberries—Illustrative Only**

	<i>Restaurants</i>	<i>Upscale Grocers</i>	<i>Farmers Markets</i>	<i>On-Farm Sales</i>
<i>Cost assumed at \$1.10/ lb.</i>	\$18/flat=4.12 lbs. \$4.36/lb. (1.10) <u>\$3.26/lb</u>	\$19/flat = 4.12 lbs. \$4.61/lb. (1.10) <u>\$3.51/lb</u>	\$6-8/lb. (1.10) <u>\$5-7/lb</u>	Same as or more than farmers markets

Assumptions:

1. Cost is average productivity in field production at the first year of full maturity.  
Example: Field Prod. Per lb.:  $\$4,945/4500 = \$1.10$  cost.
2. Average revenue per channel is assumed.
3. Gross margin per lb. is the average revenue minus average cost. Example:  
Restaurant Gross Margin per lb:  $\$4.35 - \$1.10 = \$3.26$ .

Source: Successful Systems Series (unpublished documents, Loudoun County Department of Economic Development).

This is illustrative. Market prices change daily and farmers are vulnerable to the vagaries of rain and so forth. And these dollar figures assume the plant types, fertilization, soil quality, pest management and labor required for average production.

**Producers should consider a portfolio of market channels for their products.** Many direct marketers use farmers markets as well as PYO and on-farm sales. Large upscale grocers constitute a good outlet for large volumes of high quality products. Small restaurants and grocers offer wholesale prices in exchange for showcase value and connection to the latest market trends. They are also a good outlet for new products (gold raspberries) or epicurean products, such as morels.



*“Successful direct marketing of food products requires an insight into your customers and prospects as well as solid market research and business planning.”*

Jenny Warden, MBA,  
Author

*“The interviews with chefs, produce managers and retail consumers indicate strong demand for Loudoun products... we need to grow more to satisfy the demand.”*

Warren Howell, Agri-cultural Marketing Manager, Co-author.

### **Direct marketing requires new market skills such as:**

- **Market research and analysis** –identify the market segments that best fit your products, learn what they want, and how to serve them well and certainly better than your competition. Research what your CSA customers want before you grow it. Talk to a chef or upscale grocer to find out what he or she needs now and would like to get in the future. Study garden catalogs that cater to gourmet cooks such as The Cook’s Garden and Le Jardin du Gourmet. Talk to a food editor about what’s new in consumer preferences. Ask owners of Japanese, Thai, other Asian, Middle Eastern, and Latino grocery stores if they need a new supplier.
- **Promotions and communications** – learn how to use a web site, flyers, publicity in newspapers, and advertising to get your customers to your market or farm. Use newsletters, special offers, and involvement in your farm to keep them coming back. Use signage, customer convenience, and recipes with unusual products to make your stand most appealing.
- **Competitive analysis**– stroll through the big farmers markets in Arlington, Fairfax and DuPont Circle to see what’s being offered at what price. Go to various gourmet stores– Wegmans, Whole Foods, Sutton Place, Trader Joes, and Market Salamander - to find new products.

**Advanced production methods offer even greater profitability** by extending the season, raising productivity or both. High tunnel and greenhouse production have the potential of supplementing regular season production and income, yielding very high ratios of marketable fruit and excellent prices for the small quantities of out-of-season fruits and vegetables.

**High value and high volume big growers might consider the large upscale grocery alternative.** Wegmans, and presumably more stores in the future, offers an above wholesale price and huge volume capacity to its local growers. They have helped a number of farmers who produce superb fruits and vegetables to grow with them.

**Match labor needed to production methods.** These products require a lot of labor for production and harvesting. They might also suggest a premium wage for your farm workers. Ask farmers who have solved this problem. Talk to your Extension agent.

## EDUCATIONAL RESOURCES TO LEARN MORE

### **For foods and food preparation**

[www.chefs-garden.com](http://www.chefs-garden.com)  
[www.wegmans.com](http://www.wegmans.com)  
[www.market-salamander.com](http://www.market-salamander.com)  
[www.keanyproduce.com](http://www.keanyproduce.com)

### **For farmers markets, PYO farms and CSAs**

[www.sare.org](http://www.sare.org)  
[www.nal.usda.gov/afsic/csa](http://www.nal.usda.gov/afsic/csa)  
[www.ams.usda.gov/directmarketing/](http://www.ams.usda.gov/directmarketing/)  
[www.vdacs.state.va.us/vagrown/loudoun.html](http://www.vdacs.state.va.us/vagrown/loudoun.html)  
[www.communityharvestdc.org/network/csas.htm](http://www.communityharvestdc.org/network/csas.htm)

### **For production information**

<http://agalternatives.aers.psu.edu/>  
<http://www.bee.cornell.edu/extension/CEA/indexv4.htm>  
[http://www.ces.ncsu.edu/depts/hort/greenhouse\\_veg/](http://www.ces.ncsu.edu/depts/hort/greenhouse_veg/)  
<http://www.hightunnels.org/index.htm>  
<http://www.rural-loudoun.state.va.us/>  
<http://www.vdacs.state.va.us/index.html>  
<http://ohioline.osu.edu/b826/index.html> (asparagus)  
<http://ohioline.osu.edu/b782/> (blackberries and raspberries)  
[www.ca.uky.edu/agc/pubs/ho/ho60/HO60.PDF](http://www.ca.uky.edu/agc/pubs/ho/ho60/HO60.PDF) (blueberries)  
<http://www.ext.vt.edu/pubs/envirohort/426-408/426-408.html> (lettuce)  
<http://www.uky.edu/Ag/NewCrops/introsheets/strawberryintro.pdf>  
(strawberries)  
<http://plasticulture.cas.psu.edu/>

*Thank You*  
*for Spending Time in*  
**the  
Country**



...and eating well